

1 **ABSTRACT**

2 An optical power control device comprises a transmission fiber-optic waveguide, a WGM
3 optical resonator evanescently optically coupled thereto, a modulator optical element
4 evanescently optically coupled to the WGM resonator, and a modulator control element. A
5 control signal applied to the modulator optical element through the modulator control element
6 alters the round-trip optical loss of the WGM resonator, thereby altering the transmission of
7 optical power through the transmission fiber-optic waveguide when resonant with the WGM
8 resonator. The modulator optical element may comprise an open waveguide or a closed
9 waveguide (i.e., resonator). The WGM resonator round-trip optical loss may be altered by
10 altering the optical absorption/scattering of the modulator optical element, by altering the amount
11 of optical power transfer between the WGM optical resonator and the modulator optical element,
12 or by altering an optical resonance frequency of a resonant modulator optical element.